REMARKS

I. Status of the Claims

Claims 119-153, 231, and 233-313 are currently pending in this application. Claims 233, 271-273, 311, and 312 have been amended herein.

II. Claim Amendments

Claims 233, 271-273, 311, and 312 have been amended herein to recite a SAT capacity of "at least about 7 grams/gram," "at least about 8 grams/gram," or "from at least about 7 grams/gram to about 14 grams/gram." Support for those recitations can be found in at least Figures 12, 33, and 34 and in claims 61 and 92 of the original specification. In light of at least that support in the original specification, Applicant submits that the amendments do not add any prohibited new matter and that the skilled artisan would readily understand Applicant to have been in possession of the claimed subject matter at the time this application was filed. Therefore, Applicant requests that the Office enter the claim amendments without objection.

III. Previous Rejections Withdrawn

Applicant appreciates the Office's withdrawal of the previous rejections under 35 U.S.C. § 112 and under 35 U.S.C. § 103(a) over Schmidt et al.

IV. Rejection Under 35 U.S.C. § 103(a) Over Anderson in View of Horimoto, Oku, and Smook

The Office has rejected claims 119-121, 130-131, 133-139, 141-149, 231, 233-235, 244-245,247-253, 255-263,268-275, 284-285, 287-293, 295-303 and 308-312 as obvious under 35 U.S.C. § 103(a) over WO 96/12615 to Anderson et al. ("Anderson") in view of U.S. Patent No. 4,655,877 to Horimoto et al. ("Horimoto"), U.S. Patent No. 5,254,399 to Oku et al ("Oku") and Smook, Handbook for Pulp and Paper Technologists, (2nd ed. 1992) ("Smook"). In particular, the Office believes that Anderson teaches a method of making a fibrous web comprising forming a furnish comprising bi-component fibers and wood fibers, the basis weight of which may be from 20-60 lb/2880 ft^2. *See* Office Action at 3. However, the Office admits that Anderson does not teach that the bi-component fibers may exhibit hydrophilicity, nor the claimed line speed, formation index, wet breaking length, or SAT capacity. *Id*. at 3-4.

To remedy those deficiencies, the Office asserts that Horimoto discloses that absorbent properties of a web can be improved by using short fibers of thermoplastic resin rendered hydrophilic by introduction of a nonionic surfactant, and believes that Smook and Oku show the attributes of line speed and a slotted screen. *Id*. at 4. The Office believes that the references are analogous as pertaining to the making of tissues comprising thermoplastic and cellulosic fibers, and to tissue in general, and states that the claimed properties of formation index, wet breaking length, and SAT capacity would have been inherent because the structure recited in the prior art is substantially identical to that of the claims. *Id*. at 4-5. The Office further asserts that it would have been obvious to render the bicomponent fibers hydrophilic by the introduction of a nonionic

surfactant to enhance the absorbing properties of the web. *Id*. Finally, the Office uses multiple disclosures of the cited references to reject various dependent claims. *Id*. Applicant respectfully traverses the rejection for at least the reasons presented below.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, for the skilled artisan to have modified the reference or to have combined reference teachings. Second, there must have been a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP § 2143. Applicant asserts that the references of record fail to meet any of those requirements and that the rejection should be withdrawn.

A. The Skilled Artisan Would Have Had No Motivation to Combine Anderson and Horimoto

The pending claims recite, *inter alia*, a method of making a paper product comprising dispersing thermally bondable fibers exhibiting hydrophilicity in an aqueous solution to form a nascent tissue web having either the combination of low basis weight and good formation, of high strength and high absorptivity, or of all four properties. Neither Anderson, Horimoto, Oku, nor Smook—either alone or in any combination—teach or suggest such methods.

In particular, while Anderson may teach a method of making a paper product that comprises dispersing bicomponent fibers within an aqueous solution, it does not teach or suggest that the bicomponent fibers may be thermally bondable fibers exhibiting hydrophilicity. The Office acknowledges that deficiency in Anderson, but points to the

disclosure of Horimoto to show that bicomponent fibers may be thermally bondable fibers exhibiting hydrophilicity. *See* Office Action at 3-4. However, the disclosure of Horimoto also teaches that the thermally bondable fibers exhibiting hydrophilicity are incorporated into the sheet by using a "dry sheet formation process." *See* Examples 1-7 and Claims 1-4.[1] Such a dry sheet formation process is entirely different from the method of the present claims and completely avoids the possible difficulties of obtaining sufficient dispersion of thermally bondable fibers within an aqueous solution to obtain a paper product with the claimed properties.

As noted by Examiner Hug during the personal interview on September 8, 2006, it has been found to be very difficult to sufficiently disperse synthetic fibers, in particular thermally bondable fibers exhibiting hydrophilicity, in an aqueous dispersion to achieve a nascent web with the properties recited in the instant claims. While Horimoto may summarily state that its web structures could be obtained by a wet or dry sheet forming process (*see* col. 4, lines 28-29), the reference does not provide any detailed or enabling disclosure of how such a wet forming process might be accomplished or what the properties of the web would be if it were. Instead, the remainder of the disclosure, including each of the examples as well as the claims themselves, teaches an absorbent web structure obtained by a dry sheet forming process. *See, e.g.,* independent claim 1 (explicitly reciting "an absorbent web structure obtained by a dry sheet forming

[1] Although Horimoto may disclose that its thermoplastic fibers may be rendered hydrophilic within an aqueous slurry, it does not teach that the fibers may then be dispersed in an aqueous solution to form a paper product. In contrast, it teaches that the fibers are then dehydrated and dried under heat before being incorporated into a nascent web through its dry sheet forming process. *See* col. 4, lines 11-19 and Example 1.

process"). In fact, Horimoto avoids the difficulties of the wet forming process altogether by first dehydrating and then drying its hydrophilic thermoplastic fibers prior to incorporation into the sheet by its dry process. *See* col. 4, lines 11-19.

When considered as a whole (*see* MPEP § 2141.02(VI)), Horimoto's disclosure would not have been sufficient to motivate the skilled artisan to combine the wet laying process of Anderson with the hydrophilically modified thermoplastic fibers of Horimoto. In addition, Horimoto's numerous examples and claims directed only to a dry sheet forming process certainly would not have provided the skilled artisan with any reasonable expectation of successfully achieving a paper product by a wet forming process, nor with the attributes recited in the instant claims. The mere fact that the references can be combined does not support a *prima facie* case of obviousness because they do not teach or suggest the desirability of the combination, as shown by at least Horimoto's near exclusive focus on dry sheet forming processes. *See* MPEP § 2143.01(III). Importantly, neither reference discloses or addresses problems associated with the dispersibility of hydrophilically modified thermoplastic fibers in a high speed wet forming process, which is in part the subject matter of the pending claims.

At most, Horimoto provides only very "general guidance" with regards to dispersing thermally bondable fibers exhibiting hydrophilicity in an aqueous solution and neither teaches the particular form of the claimed invention, nor any particulars of how it might be achieved. Such a teaching would have provided the skilled artisan with only a "motivation to try" a combination of the thermally bondable fibers of Horimoto with the process of Anderson. *See In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). Of course, that motivation falls far short of the standard required under

35 U.S.C. § 103 to establish a proper *prima facie* case of obviousness. As there would have been no motivation to combine the references, the obviousness rejection must fail.

B. Even If the Horimoto Fibers Were Combined with the Process of Anderson, the Instant Claims Would Still Not be Achieved

Even if Horimoto's thermally bondable fibers exhibiting hydrophilicity were combined with the process of Anderson, the resultant paper product would not contain at least two of the properties recited in the instant claims: at least a SAT capacity of at least about 7 grams/gram, and a formation index of greater than about 42. The Office admits that the prior art does not teach or suggest the claimed properties of formation index and SAT capacity, but asserts that those properties are presumed to be inherent because the structure recited in the prior art is purportedly substantially identical to that of the claims. *See* Office Action at 5. However, in contrast to the Office's assertion, the teaching of Anderson is directed to a paper product with a substantially different structure than that which would be achieved by the method of the instant claims.

In particular, the teaching of Anderson is not directed to a soft absorbent paper product exhibiting good formation and SAT capacity, but rather is directed to a fibrous web having "first and second strong, abrasion resistant, laminate-like surface regions" interconnected by a central core. *See* Abstract. Anderson teaches a paper product that requires an elastomer bonding material (preferably latex) disposed throughout each of the surface regions of the web to impart strength and abrasion resistance. *See* page 7, lines 1-6 and page 8, line 22 to page 9, line 9. The elastomer bonding material is applied to each of the surface regions such that it covers about 15% to 60% of the surface of the web and penetrates about 10% to 60% throughout the web thickness. *Id.*

As such, the web of Anderson would not be identical or substantially identical in structure or composition to a product made by the method of the instant claims, even if it were combined with the thermally bondable fibers exhibiting hydrophilicity of Horimoto or any of the other secondary references of record.

1. Independent Claims 233 and 273

In particular, the web of Anderson, as modified by Horimoto or any of the other references of record, would not exhibit at least an SAT capacity of at least about 7 grams/gram, as is required by independent claims 233 and 273. Specifically, the required elastomer bonding material coating of Anderson would mitigate against a such a highly absorbent product formed according to its teachings.

The highest absorbency disclosed for any product in any of the examples of Anderson is only 6.75 grams/gram. *See* page 25, Table 2, Sample A. When considered as a whole (as is required under MPEP § 2141.02(VI)), Anderson actually teaches away from such a highly absorbent product, instead teaching that the stratified Samples C, D, and E of Table 2, which all exhibit lower absorbency than Sample A, are preferred due to their drastically increased strength. In light of that disclosure of preferred strength over absorbency, the skilled artisan would not have been motivated to modify Anderson to achieve an SAT capacity of at least about 7 grams/gram.

Moreover, the skilled artisan would not have been motivated to remove Anderson's elastomer bonding material coating of Anderson in an effort to increase the absorbency of its product. Because the elastomer bonding material coating is critical to the invention, such a removal would destroy the intended purpose of that reference,

cutting against any motivation to remove it. *See* MPEP § 2143.01 ("The proposed modification cannot render the prior art unsatisfactory for its intended purpose.").

For the Office's proposed combination to work, the skilled artisan would have had to have been motivated to not only remove the critical elastomer bonding material coating of Anderson, but would also have had to have been motivated to use the separate thermally bondable fibers exhibiting hydrophilicity of Horimoto and use a wet formation process that is not sufficiently described by any reference of record. Such a drastic modification and combination is not suggested anywhere by any reference, and certainly cuts against any reasonable expectation of success the skilled artisan would have had in attempting to achieve the subject matter of the pending claims. Thus, the Office has failed to properly support a *prima facie* case of obviousness.

2. Independent Claims 119 and 233

Furthermore, the web of Anderson, as combined with Horimoto or any of the other secondary references, would not exhibit a formation index of greater than about 42, as is recited in independent claims 119 and 273. Neither Anderson nor Horimoto teach or suggest a high speed wet forming process in which thermally bondable fibers exhibiting hydrophilicity are incorporated into a nascent web to achieve good formation. In fact, Anderson actually teaches away from a web with such a good formation—its fibrous web is preferably formed from an aqueous slurry deposited on a forming wire "such that the outer layers of the web are formed principally with lignocellulosic fibers and the central layer of the web is formed with bi-component fiber." Page 8, lines 13-18. Anderson further teaches that such a non-uniform formation constituting an outer layer comprising principally lignocellulosic fibers and a separate inner core layer

comprising principally bi-component fibers leads to an increase in machine direction, cross machine direction, solvent, and wet tensile strengths. *See* page 26, lines 13-16.

Formation, as defined by the instant specification, refers to "the uniformity with which fibers form a sheet." Paragraph [0132]. Given Anderson's teaching of a web with a non-uniform distribution of layers of differing fiber compositions, that reference actually teaches away from a nascent web with uniformity of fibers that form a sheet with good formation. Moreover, Anderson's preferred embodiment of a stratified layered web leads to the separation of the thermally bondable fibers and the cellulosic fibers within separate headboxes—thereby completely avoiding the problems that may be associated with dispersing both of those fibers within the same mixture to form a nascent web with good formation. Therefore, even if one were to combine the product of Anderson with the thermally bondable fibers exhibiting hydrophilicity of Horimoto, the skilled artisan would be motivation to make the combination so that the fibers would be dispersed in a non-uniform way. As such, the web would not be expected to have a formation index of greater than about 42, as is recited by claims 119 and 273.

C. Other References

Whatever Smook and Oku may teach about line speed and slotted screens, they do not remedy the deficiencies of either Anderson or Horimoto with regards to a method of forming a paper product comprising dispersing thermally bondable fibers exhibiting hydrophilicity in an aqueous dispersion to form a nascent web with the properties of the instant claims, and in particular, at least the claimed SAT capacity and formation index. Therefore, those references go no farther in supporting a *prima facie* case of obviousness and Applicants respectfully request that that rejection be withdrawn.

V. Rejection Under 35 U.S.C. 103(a) Over Anderson in View of Horimoto, Oku, and Smook and further in view of Schmidt

The Office has rejected claims 122-129, 140, 150-153, 236-243, 254, 264-267, 276-283, 294, 304-307, and 313 under 35 U.S.C. § 103(a) as obvious over Anderson in view of Horimoto, Oku, and Smook, as used in the immediately preceding rejection, and further in view of European Patent No. 0 810 078 to Schmidt et al. ("Schmidt"). *Id*. at 6. In particular, with respect to the previous rejection, the Office admits that Anderson, Horimoto, Oku, and the previously cited pages of Smook do not disclose the addition of wet or dry strength agents, the use of tri-component fibers, formation of the web by wet pressing, or embossing. *See* Office Action at 6. However, the Office cites to three new pages of Smook, pages 224, 225, and 346, and asserts that these pages teach that it is known in the art to use dry strength resins and to emboss paper products to impart decorative effects. *Id*. at 7. Moreover, the Office asserts that Schmidt teaches bi-component and tri-component thermally bondable fibers that may be made hydrophobic by applying a surfactant, wet pressing, through air drying, creping, and wet and dry strength agents. *Id*. at 7-8.

Similar to the previous rejection, none of the cited references, whether taken alone or in any combination, teach or suggest methods of making a paper product comprising dispersing thermally bondable fibers exhibiting hydrophilicity in an aqueous solution to form a nascent tissue web having the properties recited in the instant claims. As argued above, the skilled artisan simply would not have been motivated to combine the wet laying process of Anderson with the hydrophilically modified thermoplastic fibers of Horimoto, and certainly not with any expectation of success. Moreover, even if there

was a motivation, the resultant product would not be identical or substantially identical to the product formed by the method of the instant claims and would not have at least the recited SAT and formation index properties of the instant claims.

In addition, whatever Oku, Smook, and Schmidt may teach about wet or dry strength agents, the use of tri-component fibers, the formation of a tissue web by wet pressing, or embossing, those references fail to remedy the deficiencies of Anderson and Horimoto. Furthermore, with regards to whatever Schmidt may teach about a wet forming process comprising thermally bondable fibers exhibiting hydrophilicity, as has previously been argued and acknowledged by the Office, Schmidt is directed to a completely different type of paper product and would not be capable of forming a nascent web with the properties recited by the instant claims. Therefore, Applicants respectfully request that this rejection be withdrawn.

VI. Rejection Under 35 U.S.C. 103(a) over Batra in View of Oku, Smook, and Schmidt

The Office has additionally rejected claims 119, 132, 233, 246, 273 and 286 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,162,327 to Batra et al. ("Batra") in view of Oku, Smook, and Schmidt. *Id*. at 9. The Office believes that Batra discloses a tissue paper product comprising cellulosic papermaking fibers and optionally synthetic fibers, that can be bicomponenent fibers comprising polyethylene and polypropylene, that have been treated with a surfactant to make them hydrophilic. *Id*. The Office states that Batra discloses that the synthetic fibers may be introduced to the tissue web by air forming. *Id*. Moreover, the Office believes that Batra discloses basis

weights from 18 to 80 lb/ream and that the tissue may be creped, uncreped, microcreped, or embossed. *Id.* The Office states that Batra does not disclose either the line speed of the papermaking machine, the formation index, the wet breaking length, or the SAT capacity of the web. *Id.* at 10. The Office points to Oku, Smook, and Schmidt to remedy those deficiencies. *Id.* Finally, the Office asserts that it would have been obvious to the skilled artisan to make a tissue product with the claimed properties. *Id.*

Similar to Horimoto, Applicant submits Batra does not teach the incorporation of thermally bondable fibers exhibiting hydrophilicity through a wet forming process. In contrast, as the Office notes, Batra teaches that the thermally bondable hydrophilic fibers exhibiting hydrophilicity may be "introduced between the outer cellulosic plies via an air forming process." Col. 7, lines 38-50. Such an air formation process is entirely different from the method of the present claims and does not involve at least dispersing the thermally bondable fibers in an aqueous solution. *See* col. 7, lines 51-57. Thus, Batra completely avoids the possible difficulties of obtaining sufficient dispersion of the thermally bondable fibers within an aqueous solution to obtain a paper product with the claimed properties.

In fact, the reference explicitly distinguishes its teaching that the thermally bondable fibers may be introduced via an air forming process from its teaching that cellulosic fibers may be introduced via a wet laying process. *See* col. 7, lines 38-60. Given Batra's explicit teaching that its thermally bondable fibers may be introduced into its web only via an air forming process—a process which does not include the step of dispersing thermally bondable fibers exhibiting hydrophilicity in an aqueous solution—the skilled artisan would have had no motivation to modify this reference to incorporate

those fibers via a wet forming process, and certainly not with any reasonable expectation of success. Quite simply, Batra entirely fails to disclose or address any of the possible problems associated with the dispersibility of hydrophilically modified thermoplastic fibers in a high speed wet forming process. Neither Oku, Smook, nor Schmidt remedy the deficiencies of Batra. Therefore, Applicants respectfully request that this rejection be withdrawn.

VII. Conclusion

None of the references, whether taken alone or in any combination, teach or disclose methods for making a paper product comprising dispersing thermally bondable fibers exhibiting hydrophilicity in an aqueous solution to form a nascent tissue web with the properties recited in the instant claims. Both of the references to which the Office points for the teaching that bicomponent fibers may be thermally bondable fibers exhibiting hydrophilicity—Horimoto and Batra—teach the incorporation of those fibers by means that completely circumvent the possible problems of poor dispersion and poor formation as may be remedied by the methods of the pending claims. As discussed in detail above, the skilled artisan would not have had any motivation to modify and combine the references of record to achieve the methods of the instant claims, and certainly not with any expectation of success.

If the Office has any questions regarding this Response or the application in general, Applicant requests that the Office contact the undersigned representative at the information listed below. Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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